Questions and Answers: Animal Care's Use of Thermography

The Animal Care (AC) program, which is part of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), enforces the Horse Protection Act (HPA).

The HPA is a Federal law, and it prohibits horses that have been subjected to a practice called soring from participating in shows, sales, exhibitions, or auctions. The HPA also prohibits drivers from transporting sored horses to or from any of these events. To enforce the law, USDA and other designated and qualified persons perform inspections at walking horse shows.

Q. What is soring?
A. Soring is a cruel and abusive practice some horse trainers and owners use to accentuate a horse's gait or step. When walking, sored horses quickly lift their front legs to relieve the pain of stepping.

Horse trainers and owners who sore their horses have developed numerous methods to alter a horse's gait. Some irritate or blister a horse's forelegs through the application of chemicals, such as mustard oil. Under the HPA, the use of foreign substances is not allowed with the exception of petrolatum, mineral oil, glycerine, or mixtures exclusively thereof. Sored horses sometimes develop permanent scars in the pastern area due to the use of painful chemicals.

Some other trainers and owners sore their horses using inhumane hoof trimming, pressure-shoeing techniques, or by using mechanical devices, such as chains, pads, or shoes. Although such devices are allowed, using them in a manner that causes pain—such as by fitting a horse with shoes that are too heavy—is a violation of the law.

Q. Why would someone want to sore a horse to accentuate its gait?
A. At walking horse shows, owners enter horses into competitions, where winners are determined in part by the height and reach of their gait, known by some as "The Big Lick." Walking horses are known for possessing a naturally high gait, but to succeed in competition their natural gait must often be exaggerated.

An exaggerated gait can be achieved with proper training and considerable time; however, some horse exhibitors, owners, and trainers choose to use improper and inhumane training methods to shorten the time it takes to produce a winning gait.

Q. How is soring detected?
A. Soring is detected during inspections performed by USDA and designated qualified persons (DQPs), who are trained by USDA under the HPA regulations. DQPs, hired by the sponsors of walking horse shows, perform inspections at all affiliated walking horse shows, sales, and auctions. Designated industry groups, who sponsor shows but choose not to hire DQPs, are inspected only by USDA. USDA performs inspections at less than 10 percent of walking horse shows.

During inspections, inspectors evaluate a horse's appearance and locomotion and physically examine the animal for any signs of pain, scars, blisters, or odors associated with soring practices. USDA also randomly swabs horse's legs to test for foreign substances.

Over the years, the methods used to sore horses have become more sophisticated. This fact highlights the need for USDA to utilize modern technologies, such as chemical testing and thermography, and to inform DQPs and horse industry organizations about the availability of emerging technological resources to detect soring.

Q. What is thermography?
A. Thermography is a technology that measures the surface temperatures of an object. This technology has been incorporated into diagnostic equipment used by medical professionals, devices that enable firefighters to see through smoke, and some night-vision equipment.

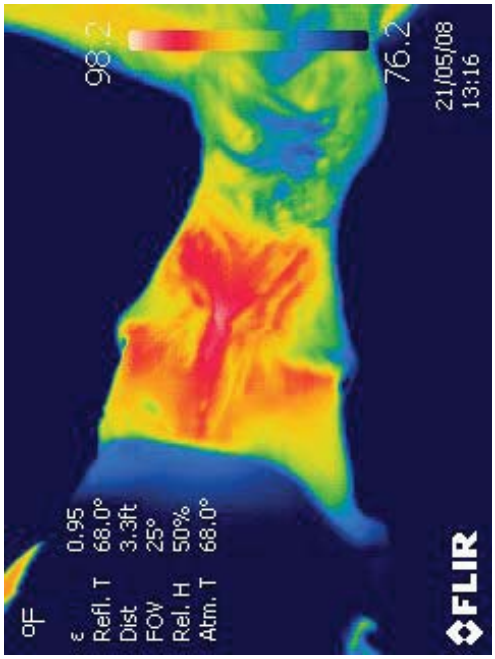
Thermographic images are taken with a thermal or infrared camera. Cooler areas appear blue and purple, while warmer areas appear yellow, orange, and red. Thermographic pictures of an animal can reveal areas that are excessively warm or cool, both indicating abnormalities and the need for closer evaluation.

Q. What do areas of abnormal heat or coolness suggest?
A. Areas may appear excessively warm due to increased blood flow, irritation, or inflammation. Inflammation occurs when tissue is damaged or injured causing the area to become warm (painful). Areas may appear excessively cool due to decreased blood flow or the application of cooling substances.

Substances that cause a cooling effect are typically used to numb a horse so that it will not react with pain when touched by an inspector.

Q. How will thermography be used during inspections?
A. Thermography will be an additional diagnostic tool that USDA inspectors can use to obtain objective and scientific data to help identify sore horses. It provides additional consistency to the inspection process. Inspectors with veterinary doctoral degrees will be responsible for operating the thermal cameras and for taking pictures of horse limbs and forelegs. Inspectors will review the thermographic images and further evaluate the horse in the areas that appear excessively warm or cool.

Q. Will thermography replace any of the other methods of inspection?
A. Thermography will not replace any of the other methods of inspection. The technology will be used as an additional diagnostic tool that can provide objective and scientific data during the inspection process. For example, if a thermographic image indicates an area of excessive heat, the inspector can further evaluate the area to determine if there is evidence of inflammation, a foreign substance, pressure shoeing, or other violations of the HPA.



This image is of a horse in violation of the scar rule. The thermogram shows vertical "red streaks" that directly correspond to the inflamed and damaged skin.

Q. When will the Horse Protection Program start using thermography?
A. USDA successfully integrated thermography into the Horse Protection Program in 2008 without enforcement actions. For the 2009 show season, thermography will be part of the inspection protocol to further confirm violations of the HPA.

Q. How can I get more information on the HPA?
A. For more information on the HPA, please visit our Web site at www.aphis.usda.gov/animal_welfare.

Q. How can I get more information on thermography?
A. Many industry Web sites also contain information about thermography, its uses, and the equipment associated with this technology. Among others, you may wish to visit Web sites such as www.meditherm.com or www.flir.com/US for more information about the technology. Animal Care personnel currently use thermographic cameras made by FLIR Thermal Infrared Camera Systems, Inc.

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